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ABSTRACT

A case study of association between usage of online journals and their impact factors was conducted for the subscribed journals of the Health Sciences Library of Manipal Academy of Higher Education, Manipal. The publisher-generated usage statistics were collected and tabulated for the period 2010-2015. The full text usage was considered as the criteria for identification of the extent of usage of online journals from different publishers. The Journal Impact Factor (JIF) of these journals were retrieved in 2015 from Journal Citation Report to check whether association existed between the most used and the least used journals with their impact factor. The study identified two lists of journals, the most used and the least used journals, from among the subscribed online journals through the usage analysis. 'Mann Whitney U test' was performed to check the association between the usage of online journals and their impact factors. It was observed that there is a statistically significant difference ($p<0.001$) in the impact factors of the most used journals and the least used journals, which indicated that an association existed between the IFs and the usage. The application of the outcome measures of the study provide a benchmark for the online journal collection for the libraries that explore the usage of its online resources. Study also propositions the means for increasing the usage of subscribed online journals.

Keywords: *Online journals; Usage reports; Journal Impact Factor; Most used journals, Least used journals and Association of online journal usage and IF*

INTRODUCTION

Online information resources are at the centre of the intellectual undertakings of higher academic institutions. Academic libraries offer a wide range of online resources according to the needs of its users, which include online bibliographic/full text databases, online journals, online books and numeric data resources. In libraries, online resource usage measures are assessed through studies on usage reports and citations, as they constitutes an important aspect of the extent of utilization of the resources. The new library environment created by the migration over the recent decades, from print to online resources have produced a flood of usage data/statistics that are recorded automatically for the logins, searches and downloads. Assessment of usage reports of the journal collection made available by publishers have thus become an important task for the libraries. By tradition, libraries have maintained usage statistics records of circulation, gate counts, interlibrary loans and information services. Academic libraries also regularly gather usage statistics to submit reports to library boards and their parent institutions. Ever since the swift emergence of online resources and the burst of online services, many institutions have recognized the benefits of investing in collecting, compiling, reporting and analysingthe usage statistics (Jung, Kim, So and Kim 2015). High priority is connected to the analysis of the usage

reports, due to its multiple applications for decision making for investment on library subscribed resources. The usage reports help the libraries to compare usage statistics of online resources from different content providers, publishers or vendors, and to derive metrics that help to make better subscription decisions, collection evaluation, cost-per-use analysis, planning for long term initiatives and providing infrastructure more effectively (McDonald 2006). The availability of usage data for online journals has opened the door to usage-based measures of journal impact, value and status. Impact Factor (IF) is the most popular measurement used in comparative assessment of journal's function. JIF has been favored by researchers, rating agencies, journal publishers and government agencies at the time of making decisions related to the choice of journals, indicating that it has become an unavoidable measuring index (Yu, Yu, Song and Wang 2018). Therefore, a study was planned to examine the association between the usage of subscribed online journals and their impact factors. Effort has been made to develop and demonstrate usage-based metrics through this study. A study of association of online journal usage and JIF can be used as a benchmark for online journal collection of the library and is of interest as it might provide a basis for collection management in specific subject areas in the libraries of academic and research institutions.

LITERATURE REVIEW

Journal is a periodical, which contain scholarly articles and disseminate up-to-date information on research and development of a specific subject area. If a journal disseminates information through electronic media, it is known as e-journal. If the content of a journal is organized and stored in the form of a database and retrieved through online, then it is called online e-journal (Chakraborty and Chakraborty 2002).

The usage report gives the number of times the journal articles and book chapters were used or downloaded per unit time by the users of an institution/organization. Usage analysis involved calculating the number of times a journal article or book chapter was used over a period of time (Prathap 2013). The evaluation of usage data was useful for effective planning and for taking important decisions on subscription of databases/e-journals and in collection management decisions of electronic information resources in different subject areas. Thus usage reports were an important tool that helped evaluation of the e-resource collection. The study of usage analysis helped to identify important e-journals and databases for the proper allocation of funds (Londhe and Deshpande 2013).

Counting Online Usage of Networked Electronic Resources (COUNTER) is an established tool available to publishers, formulated for reporting the EIR usage with consistency. COUNTER came into being in 2002 and is owned by 'Counter Online Metrics' that is registered in England to provide authentic usage statistics of online resources for the content providers, librarians and others. COUNTER has offered a standard for usage statistics generated by the publishers, for libraries and library consortia since 2002. Decision making on collection development of networked resources of the libraries is aided by comparison of usage measurement from the publishers and aggregators. (Davis and Price 2005; Shephern.d; COUNTER Online Metrics 2012: Project COUNTER n.d.). Usage information of online resources is variably known as usage statistics, counter data and usage reports.

Conyers (2006) discussed the advantages of counter statistics in the light of the vast amount of usage data for which the publisher is the primary source providing data for the serials, databases or e-books. Endless opportunities exists for the libraries to analyze the usage reports, and the COUNTER provides four main types of usage reports: request for full text articles that are successful, per month and journal (JR1); turnaways of request per month/journal (JR2); total number of successful item requests as well as turnaways of request per month/journal and page type (JR3); and the total number searches run per month for service. The usage data as an indicator of the use of online resources in decision-making, especially in the case of scholarly journals requiring long term subscription with significant financial

commitment, is underscored. Fleming-May and Grogg (2010) have also identified the definitions of variables of networked electronic resources as full-text articles, searches, turnaways and sessions.

International Coalition of Library Consortia (ICOLC 2006) recommended conservation of past usage record for a minimum period of three years. Jung and Kim (2013) observed that usage statistics for online journals are not publically available, being managed by the content providers for each academic institution. The COUNTER-compliant usage statistics record is however not conserved for many years, unless the publishers have a higher readership due to the cost involved.

The download reports of journals could be a useful tool for librarians to make an evaluation of the utilization of subscribed online journals. Reports from literature shows that full text download/usage (combination of HTML and PDF downloads) was identified as the most useful for assessment of the usage of online journals (Davis 2004; Baker and Read 2008)

Usage reports analysis was an unnoticeable way to study patterns of use and trends over time, an effective way to gather long term usage data, users' behavior in using different forms of electronic resources and a practical way to find difference between what users say and what they really do, when they use an online resource (Covey 2002).

A study on the application of the usage statistics to assess the e-journals usage in Hyderabad University (Suseela 2011), found the actual usage and usefulness of several electronic journals, their quality and cost benefit by application of usage reports. The research paper discussed about the importance of usage reports in proving e-journals' usefulness and demonstrated the application of usage reports by the academic library in times of renewal/subscription. The study covered aspects of selection of electronic journals, their updates and renewal/cancellation of journals.

Reports on studies of usage reports of journals showed that libraries were not provided with usage reports by the publishers when fewer journals were subscribed from them (Noonan and McBurney 2007; Rathemacher 2010).

The impact factor, devised by Eugene Garfield, calculated after completing a minimum of 3 years of publication, cannot be calculated for the new journals. The journal with the highest IF is the one that published the most commonly cited articles over a 2-year period. IF is published by Clarivate Analytical (previously known as Thomson Reuters) for those journals that it indexes, and are published in Journal Citation Reports- JCR (Sharma et al. 2014). Sewell et al. (2015) mentioned that "the Journal Impact Factor (JIF) is an index used to compare a journal's quality among academic journals and it is commonly used as a proxy for journal quality".

IMPORTANCE OF THE STUDY

The Health Sciences Library of Manipal Academy of Higher Education (MAHE) was established in 1953 at Manipal. The library catered to the information needs of the health science professionals of all the health sciences institutions of MAHE at Manipal - Kasturba Medical College, Manipal College of Dental Sciences, Manipal College of Nursing, Manipal College of Pharmaceutical Sciences and School of Allied Health Sciences. The library has a rich collection of online information resources such as bibliographic and full text databases, online journals and online books, and provided access through different modes *viz*., User ID with password, internet protocol, Wi-Fi and remote login. The library subscribed to a large number of journals and continuously add journals to its collection from different publishers, and a study was found appropriate and necessary for the assessment of usage of journals that require long term financial commitment.

OBJECTIVES

The objectives of the study were (1) assessment of usage of subscribed online journals of the Health Sciences Library from 2010 to 2015; (2) identification of the most used and the least used online

journals; (3) identification of association if any, existed between the usage of online journals and their impact factors.

METOHDOLOGY

The publishers from whom five or more online journals were subscribed by the library from the year 2010 to 2015were selected for the study. The study retrieved usage reports from the online journals of 11 publishers – British Medical Journal (BMJ), Elsevier Science (ES), Journal of American Medical Association (JAMA), Karger, Lippincott Williams and Wilkins (LWW), Nature, Oxford University Press (OUP), Sage, Springer, Taylor & Francis (T&F) and Wiley (W). The usage reports or usage statistics of online journals were acquired directly from the publishers. These online journals' titles were retrieved publisher-wise through the library automation software, EasyLib. Quantitative data was collected i.e., usage counts of online journals and Journals Impact Factors (JIFs). Analysis to test the association of the most used and the least used online journals and the IF was performed.

Gathering of Usage Reports of Online Journals from the Publishers

The publisher-generated usage statistics where available, for the Health Sciences Library, were collected and tabulated for the period 2010-2015. Journal Report 1 (JR1), where total use denotes the sum of HTML views and PDF downloads was collected for the study. Monthly usage reports of online journals were collected and tabulated for the whole year, from January to December, in a consistent format and recorded in an Excel spreadsheet. Yearly usage data of each online journal was thus collected and analysed.Full text downloads (HTML+PDF downloads) was adopted as the criteria for collection and analysis of usage of each subscribed online journal selected for the study.

Identification of the Most Used and the Least Used Online Journals

The most used and the least used online journals were identified by selecting the journals based on their yearly usage from 2010 to 2015. The journals were arranged in descending order based on their usage for each year. The top 10% (most used) and bottom 10% (least used) of the journals were identified for every year from 2010 to 2015 to prepare two lists of journals. The total usage of the journals for each year of the study period of six years were computed, to prepare the two lists, (1) the most used and (2) the lest used online journals.

Collection of Online Journal Impact Factor

The 5-year journal impact factors of these journals were retrieved in the year 2015from Journal Citation Report (JCR, Science edition) to check whether association existed between the most used and the least used journals with theIF.

DATA ANALYSIS

The usage reports obtained for the subscribed online journals were analysed. The frequency and percentage for all qualitative variables; mean and standard deviation for quantitative variables if data follows normality, or else median and IQR were reported. Mann Whitney U test was performed to check is there any significant association between online journal use and their Impact Factor, as the variable violates the normality. $P < 0.05$ was considered as significant. Entire statistical analysis was performed using R (EZR version 1.35).

RESULTS

Usage of Online Journals

The Figure1 showed the number of subscribed online journals from which the usage was collected year-wise, their full text usage and average usage per journal for each year. Full text usage was the highest for the 313 journals in the year 2015 with usage of 130461 times and average usage per journal of

416.81 times, followed by 303 journals in 2012 with usage of 123995 times with average usage per journal of 409.22 times, and 305 journals in 2014 with usage of 121663 times with average usage per journal of 398.89 times. The usage (89460 times) was the lowest with average per journal usage of 335.1 times during 2010 (Fig. 1). The finding showed an increase in usage of subscribed online journals by the users of the library in the year 2015, compared to the previous years.

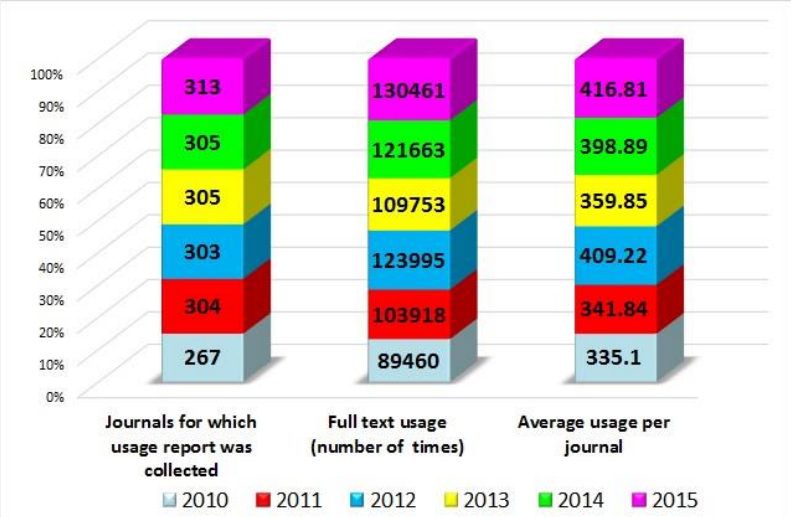

Figure1: Usage of Subscribed Online Journals from 2010 to 2015

The full text usage or downloads collected for the subscribed online journals from eleven publishers from the year 2010 to 2015 is presented in Table 1. The table presentsnames of publishers, number of journals for which usage reports collected from different publishers, total full text usageand average full text usage per publisher under study are presented year-wise and for entire study period. Table 1 also shows the publisher-generated usage statistics for the study period. Usage reports of journals of a few publishers couldn't be collected due to the change in name of publishing platforms (e.g., Springer, changed to Springer Link) or publishers (e.g., Taylor & Francis, previously Informa Healthcare), change of journal names (e.g., JAMA) and change in interface owed to different technology adopted by the publishers as shown in the table.

The results of the year-wise usage reports of online journals from different publishers have shown that the highest full text usage was noted for Elsevier Science with 64919 downloads in the year 2012, followed by Wiley with 25633 downloads in the year 2012 and BMJ with 15214 downloads in the year 2013 as provided in Table 1.

The findings of overall usage of online journals from the year 2010 to 2015 based on usage reports obtained from different publishers showedthat the journals from the Elsevier Science publisher accounted for the maximum full text usage (319045 times) followed by Wiley (133561 times), BMJ (67866 times), Lippincott (55968 times), Nature (37214 times), OUP (28587 times) and JAMA (13407 times) as shown in the table.

The results on the average usage per journal from the year 2010 to 2015 for a publisher showed that the highest average full text usage was from Nature journals (791.79) followed by journals from BMJ (721.98), JAMA (670.20), OUP (608.23) and Elsevier Science (504.02) and details are given in the Table 1.

Table 1: Usage of Online Journals Subscribed from Different Publishers from 2010 to 2015

NJP	Year						Total from 2010 to 2015	
	2010	2011	2012	2013	2014	2015		
	NSJSS (FU)	NSJSS (FU)	NSJSS (FU)	NSJSS (FU)	NSJSS (FU)	NSJSS (FU)	NSJSS (FU)	AFUP

BMJ	NA	11 (9784)	11 (11125)	24 (15214)	24 (16674)	24 (15069)	94 (67866)	721.98
ES	109 (58346)	109 (52817)	107 (64914)	102 (43215)	101 (45475)	105 (54278)	633 (319045)	504.02
JAMA	NA	NA	NA	NA	10 (4758)	10 (8646)	20 (13404)	670.20
Karger	6 (1536)	6 (789)	6 (1236)	6 (3855)	5 (2329)	5 (1512)	34 (11257)	331.08
LWW	53 (8727)	51 (8056)	51 (11618)	53 (6758)	51 (12060)	46 (8749)	305 (55968)	183.50
Nature	NA	10 (7370)	10 (7616)	10 (8609)	9 (4951)	8 (8668)	47 (37214)	791.79
OUP	NA	NA	NA	16 (7442)	15 (12124)	16 (9021)	47 (28587)	608.23
Sage	NA	18 (1770)	18 (994)	17 (1817)	17 (1381)	19 (1923)	89 (7885)	88.60
Springer	23 (1557)	21 (1349)	22 (859)	NA	NA	NA	66 (3765)	57.04
T&F	NA	NA	NA	NA	NA	11 (698)	11 (698)	63.45
W	76 (19294)	78 (21983)	78 (25633)	77 (22843)	73 (21911)	69 (21897)	451 (133561)	296.14
Total	**267 (89460)**	**304 (103918)**	**303 (123995)**	**305 (109753)**	**305 (121663)**	**313 (130461)**	**1797 (679250)**	-

(NJP= Name of Journal Publishers; NSJSS= Number of Subscribed Journals Selected for Study; FU= Full text Usage; AFUP= Average Full text Usage per Publisher; NA= Not Available)

Association of Online Journal Usage with Impact Factor

From the usage reports of subscribed online journals collected during 2010 to 2015, the study identified two lists of journals - the most used and the least used journals. Table 2 shows that sixty eight journals with 345726 full text downloads were identified as the most used journals, whereas 70 journals were identified as the least used journals with 768 times full text downloads from 2010 to 2015. The lists of online journals is provided in Appendix. IFs were available for all except 2 journals in the most category, whereas IFs were not available for 20 journals in the least used category. Table 2 also presents the number of journals that were grouped according to their impact factors: having '5 or above', 'between 1 and 5', and 'below one'. It was found from the study that there were 24 journals, each with IF of 5 or above in the list of most used journals, whereas only 5 journals were identified with the impact factor of 5 or above in the list of least used journals.

Table 2: Summary of the Most Used and the Least Used Online Journals and Difference in their IFs

Description	Most used journals	Least used journals
Number of journals identified	68	70
Number of journals for which IFs available	66	50
Total number of full text usage collected from usage reports	3,45726	768
Number of journals with IF '5 or above'	24	5
Number of journals with IF 'between 1 and 5'	38	35
Number of journals with IF 'below 1'	4	10

'Mann Whitney U test' was performed to test whether there was significant association between the online journal usage and the JIF, as the data violated the normality. The median IF was found to be 3.32

(Q_1=1.23, Q_3=5.35) for the 66 most used online journals and for the least used online journals (50) the median IF was 2.09 (Q_1=1.34, Q_3=3.38). It was observed that there was a statistically significant difference in the impact factors of the most used journals and the least used journals (p<0.001) (Table 3 and Figure 2). This indicated that an association existed between the online journal usage and their JIF.

Table 3: Summary of Mann Whitney U Test Results

Online Journal Use	Impact Factor		U statistic	P value
	Median	Q1, Q3		
Most used journals (n=66)	3.32	1.23, 5.35	960	P<0.001
Least used journals (n=50)	2.09	1.34, 3.38		

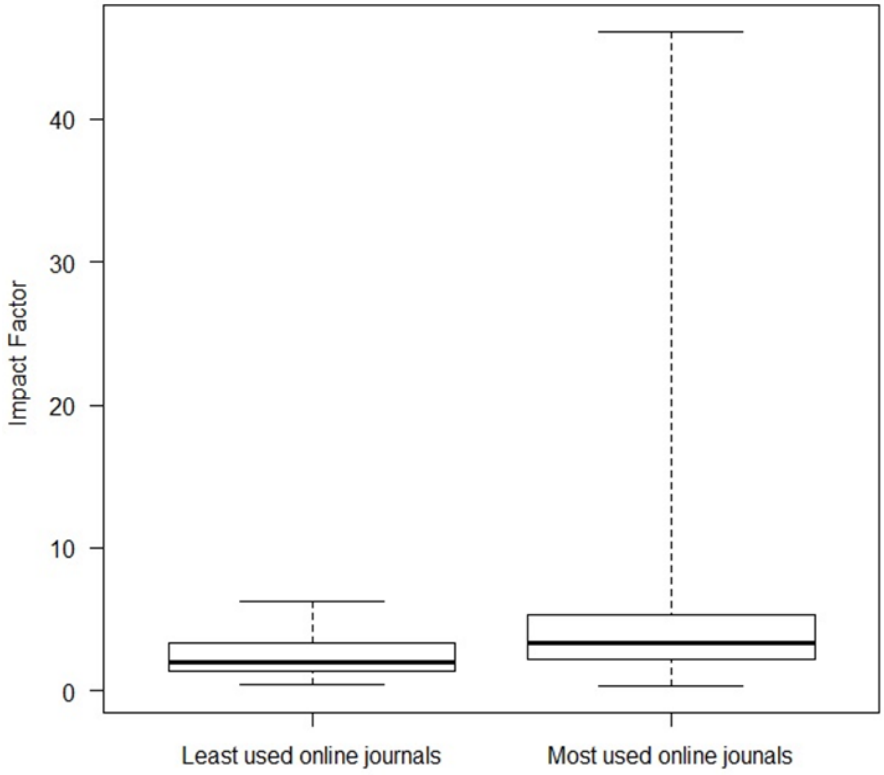

Figure 2: Box Plot Showing the Distribution of Impact Factors of Online Journal Usage

DISCUSSION

Previous reports have demonstrated the merits of the of usage measurements of online journals as a tool in decision making activities in the libraries i.e., for justification of purchase, cancellation of subscriptions, promotion of lesser used resources, upgrading of existing resources and assistance in planning (Hao-Re et al. 2002; Nicholas et al. 2008; Boukacem-Zeghmouri and Schopfel 2012; Kennedy and Laguardia 2014). In the current study, the association of online journal usage with IFs of journals subscribed by the library was explored.

The study provided the list containing the most used as well as the least used journals by the users of the library. Journals from the publishers, Nature, BMJ, JAMA, Oxford University Press, Elsevier Science and Karger were the most used. A statistically significant difference (p<0.001) in the IFs between the

most used and the least used online journals was found, which indicated that the usage of journals is associated with the JIFs and vice versa. The outcome of the study provide a benchmark for the usage of online journal collection for the libraries that explore optimal usage of its resources. The study also propositions the means for increasing the usage of subscribed online journals and identification of areas for improvement. It will be helpful for the library to identify, where to provide more attention for promotion of underutilized resources with academic value viz., product training and enhancing functionality for effective utilization of online resources.

SUGGESTIONS

Based on the current findings, the following suggestions are proposed to increase the usage of subscribed resources of the library.

User Consultancy Cell: Setting up a 'user consultancy cell' for providing answers to the queries of the users regarding access and usage of subscribed resources of the library will increase usage.

Quick Response (QR) code: Introduction of QR code application for the library subscribed online journals is recommended. QR code could be made accessible by displaying at the library bulletin board and at strategic locations of the health sciences institutions to disseminate subscription information for enhanced usage.

Mobile Apps: Creating a mobile app for the Health Sciences Library for the smart phones/tablets to help quick access of library resources is suggested. The mobile app can be used to update the user community on the current events of the library, searching of catalogues and promotion of online resources subscribed by the library**.**

Least Used Journals: Regarding the least used subscribed online journals identified by the study, their availability for a limited period of time (e.g., for 2 to 3 years) may be notified for the benefit of users. Thereafter, if the journal utilization is not adequately increased, the decision regarding the renewal of subscription may be taken in consultation with the concerned departments.

CONCLUSION

The study shows the reliability of the usage statistics as the basis for assessing utilization of online journals at the institutional level and how the combination of other measures can present it with more clarity. The application of the outcome measures of the study is helpful for the libraries that explore the usage of its online resources. Detailed analysis of usage statistics and impact factors or a range of other variables can be used to build up a picture of online resource usage and to provide a firm quantitative basis for more qualitative research into user behavior.

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Appendix A: Lists of the most used and the least used subscribed online journals and their Journal Impact Factors

Sl. No.	Most used online journals			Least used online journals		
	Journal name	Full text usage (html+Pdf)	JIF	Journal name	Full text usage (html+Pdf)	JIF
1.	Journal of Endodontics	26060	3.357	Acta Obstetricia Gynecologica Scandinavica	0	2.205
2.	British Medical Journal	22482	17.687	Clinics in Plastic Surgery	0	1.394
3.	Journal of Prosthetic Dentistry	18233	1.855	European Journal of Cardiovascular Prevention and Rehabilitation	0	3.455
4.	American Journal of Orthodontics and Dentofacial Orthopedics	14560	2.201	European Journal of Orthodontics	0	1.627
5.	Lancet	14103	46.119	Journal of Indian Prosthodontic Society	0	NA
6.	Fertility and Sterility	13271	4.333	Medicine Science and Law	0	0.587
7.	Journal of Oral and Maxillofacial Surgery	12397	1.785	Occupational Therapy Journal of Research	0	NA
8.	International Journal of Pharmaceutics	11445	4.248	Surgical Oncology Clinics of North America	0	1.567
9.	Journal of Clinical Periodontology	10632	4.435	Tropical Doctor	0	0.588
10.	Nature	10310	41.458	Dental Clinics of North America	1	NA
11.	Archives of Physical Medicine and Rehabilitation	9720	3.315	Japanese Journal of Ophthalmology	1	1.499
12.	Best Practice and Research Clinical Obstetrics and Gynaecology	9389	2.628	Nursing Clinics of North America	1	0.915
13.	Journal of Arthroplasty	8529	2.64	American Journal of Cardiology	2	3.356
14.	Arthroscopy - Journal of Arthroscopic and Related Surgery	7763	3.865	Journal of Maxillofacial and Oral Surgery	2	NA
15.	Dental Materials	7678	4.667	Medical Mycology	2	2.164
16.	Periodontology 2000	7535	5.108	Oral Surgery Oral Medicine and Oral Pathology	3	NA
17.	British Dental Journal	7243	0.958	World Neurosurgery (Formerly - Surgical Neurology)	3	2.59
18.	BMJ Case Reports	7162	NA	Congenital Anomalies	4	0.941
19.	JAMA- Journal of American Medical Association	7016	33.569	Journal of Acquired Immune Deficiency Syndromes	4	3.953
20.	International Endodontic Journal	6607	2.794	American Journal of Medicine	5	5.263
21.	International Journal of Oral and Maxillofacial Surgery	5966	1.92	Clinical Social Work Journal	5	0.738
22.	Clinical Infectious Diseases	5930	8.88	Journal of Nursing Administration	5	1.474
23.	Human Reproduction	5531	4.635	Nurse Educator	5	0.909
24.	Manual Therapy	5417	2.49	Surgical Oncology Clinics of	5	1.567

25.	Caries Research	4683	3.174	North America Urology	6	2.241
26.	Kidney International	4342	7.839	American Journal of Obstetrics and Gynecology	7	4.552
27.	Journal of Controlled Release	4242	8.407	American Journal of Surgery	7	2.649
28.	Journal of Ethnopharmacology	4094	3.333	Medical Oncology	7	2.325
29.	Clinical Oral Implants Research	3959	4.522	Oral and Maxillofacial Surgery Clinics of North America	7	0.952
30.	British Journal of Oral and Maxillofacial Surgery	3930	1.392	Physical Medicine and Rehabilitation Clinics of North America	7	1.696
31.	Nephrology Dialysis and Transplantation	3924	3.459	Seminars in Nephrology	7	3.459
32.	Seminars in Nuclear Medicine	3434	3.112	Medicine - Lippincott	8	3.195
33.	Journal of Vascular and Interventional Radiology	2945	2.538	Nursing Administration Quarterly	8	NA
34.	Journal of Neurology Neurosurgery and Psychiatry	2858	2.538	American Journal of Kidney Diseases	9	5.684
35.	Archives of Disease in Childhood	2783	3.054	American Journal of Ophthalmology	9	4.069
36.	British Journal of Anesthesia	2659	5.198	Indian Journal of Surgery	9	0.465
37.	Journal of Pediatric Orthopedics: Part-A	2588	1.465	Journal of World Intellectual Property	9	NA
38.	Journal of Hand Surgery (American Volume)	2318	1.822	Nursing 2012	10	NA
39.	Community Dentistry and Oral Epidemiology	2074	2.357	International Anesthesiology Clinics	11	NA
40.	International Journal of Pediatric Dentistry	2052	1.32	World Patent Information	11	NA
41.	Gut	2047	13.128	European Journal of Physiotherapy	12	NA
42.	Journal of Clinical Ultrasound	1999	0.888	Journal of Hepato Biliary Pancreatic Sciences	12	2.736
43.	Pharmacogenomics Journal	1963	3.627	Magnetic Resonance Imaging Clinics of North America	12	1.662
44.	Journal of Prosthodontics	1962	1.133	Seminars in Oncology	12	3.847
45.	American Journal of Epidemiology	1938	5.471	Department Chair - Formerly - Department Advisor	13	NA
46.	Cancer	1922	5.434	Diseases of the Colon and Rectum	13	3.744
47.	Journal of Pharmaceutical and Biomedical Analysis	1902	2.904	Journal of Family Nursing	14	2.03
48.	Burns	1876	2.17	Journal of Royal Statistical Society - Series B: S	14	NA
49.	Circulation	1777	16.252	Disease A Month	16	NA
50.	Seminars in Ultrasound CT and MRI	1453	1.703	International Social Work	16	0.745
51.	Medicine and Science	1372	5.318	Journal of Cardiothoracic and	16	1.561

52.	in Sports and Exercise Respiratory Medicine	1299	3.213	Vascular Anesthesia Orthopedic Nursing	16	NA
53.	Neurology	1272	8.092	Annals of Emergency Medicine	17	5.041
54.	International Dental Journal	1119	1.206	Journal of Holistic Nursing	17	NA
55.	Seminars in Roentgenology	1111	0.966	Neurosurgery Clinics of North America	17	1.814
56.	Fitoterapia	1110	2.631	American Heart Journal	18	4.309
57.	Thorax	1096	8.092	Gastrointestinal Endoscopy	18	6.247
58.	American Journal of Surgical Pathology	1089	5.128	Journal of Visual Communication in Medicine	18	NA
59.	Seminars in Orthodontics	1040	0.346	Journal of Geriatric Psychiatry and Neurology	19	2.929
60.	Clinical Psychology Review	1016	11.08	Molecular Oral Microbiology	22	3.092
61.	JAMA Internal Medicine	990	14.063	Techniques in Regional Anesthesia and Pain Management	23	NA
62.	Heart	977	4.929	International Journal of Language & Communication Disorders	24	1.864
63.	British Journal of Ophthalmology	975	2.999	Journal of American Psychiatric Nurses Association	25	NA
64.	Journal of Cardiopulmonary Rehabilitation and Prevention	974	1.992	Nursing Management	25	2.338
65.	Postgraduate Medical Journal	954	1.709	Journal of Neurosurgical Anesthesiology	26	2.147
66.	Survey of Ophthalmology	884	3.941	Journal of Transcultural Nursing	26	1.164
67.	Gastroenterology	877	15.417	Research on Social Work Practice	27	1.712
68.	Medicine - Elsevier	868	NA	Journal of Royal Statistical Society - Series C: A	28	NA
69.	-	-	-	Advances in Nursing Science	33	1.051
70.	-	-	-	Journal of Cardiac Surgery	39	0.982